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<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/033,147	LANGILLE ET AL.	
	Examiner	Art Unit	
	Salman Ahmed	2616	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed on 12/13/2006.
2. ☒ The allowed claim(s) is/are 1, 7-9, 11-14, 20-22, 24-26 are 27-30 (Currently renumbered to 1, 8, 2, 3, 10-12, 4, 14, 5, 6, 16-18, 7, 9, 13 and 16 respectively).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|  | 9. <input type="checkbox"/> Other _____.   |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. Claims 1, 7-9, 11-14, 20-22, 24-26 and 27-30 are allowed.

### ***Reason for Allowance***

2. The following is an examiner's statement of reasons for allowance:

The prior art of record does not teach the following:

In regards to claims 1 and 14 the prior art does not teach the virtual interfaces included in the virtual interface subsystem further include automatic protection switching virtual interfaces, each automatic protection switching virtual interface being operative to associate a virtual channel with two media virtual interfaces serving as alternative interfaces for sending or receiving routing traffic, the physical network links connected to other network devices include access links and backbone links, and wherein the sets of virtual interfaces include first and second sets, the first set including only a channel virtual interface and a media interface and being associated with an access link, and the second set including a channel virtual interface, an automatic protection switching virtual interface, and a media interface and being associated with a backbone link.

In regards to claim 27 the prior art does not teach the virtual interfaces included in the virtual interface subsystem include channel virtual interfaces and media virtual interfaces, each channel virtual interface being operative to associate a generic interface identifier of the virtual router subsystem with a virtual channel defined in the

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network device, and each media virtual interface being operative to associate a virtual channel with a corresponding physical interface and physical channel defined on the associated physical network link, the channel virtual interfaces are channel virtual interfaces of a first type, and further including channel virtual interfaces of a second type, each second-type virtual interface being operative to associate a label of a label-switched path via which routing traffic can be sent or received with a corresponding virtual channel, and wherein the types of virtual interfaces included in the virtual interface subsystem further include label virtual interfaces, each label virtual interface being operative to associate a generic interface identifier of the virtual router subsystem with a label for such a label-switched path, the physical network links connected to other network devices include access links and backbone links, and wherein the sets of virtual interfaces include first and second sets, the first set including only a channel virtual interface and a media interface and being associated with an access link, and the second set including a label virtual interface, a channel virtual interface, and a media interface and being associated with a backbone link.

In regards to claim 28 the prior art does not teach the virtual interfaces included in the virtual interface subsystem include channel virtual interfaces and media virtual interfaces, each channel virtual interface being operative to associate a generic interface identifier of the virtual router subsystem with a virtual channel defined in the network device, and each media virtual interface being operative to associate a virtual channel with a corresponding physical interface and physical channel defined on the associated physical network link, the types of virtual interfaces included in the virtual

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interface subsystem include channel virtual interfaces, media virtual interfaces, inner label virtual interfaces, and outer label virtual interfaces, each inner label virtual interface being operative to associate a generic interface identifier of the virtual router subsystem with an inner label-switched path via which routing traffic is sent or received, each outer label virtual interface associating multiple inner label-switched paths with an outer label-switched path in which the associated inner label-switched paths are logically included, each channel virtual interface being operative to associate an outer label-switched path with a virtual channel defined in the network device, and each media virtual interface being operative to associate a virtual channel with a corresponding physical interface and physical channel defined on an associated physical network link.

In regards to claim 29 the prior art does not teach virtual interface including channel virtual interfaces and media virtual interfaces, each channel virtual interface being operative to associate a generic interface identifier of a corresponding virtual router with a virtual channel defined in the network device, and each media virtual interface being operative to associate a virtual channel with a corresponding physical interface and physical channel defined on the associated physical network link, the channel virtual interfaces are channel virtual interfaces of a first type, and further including channel virtual interfaces of a second type, each second-type virtual interface being operative to associate a label of a label-switched path via which routing traffic can be sent or received with a corresponding virtual channel, and wherein the types of virtual interfaces further include label virtual interfaces, each label virtual interface

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being operative to associate a generic interface identifier of a corresponding virtual router with a label for such a label-switched path, the physical network links connected to other network devices include access links and backbone links, and wherein the sets of virtual interfaces include first and second sets, the first set including only a channel virtual interface and a media interface and being associated with an access link, and the second set including a label virtual interface, a channel virtual interface, and a media interface and being associated with a backbone link.

In regards to claim 30 the prior art does not teach virtual interface including channel virtual interfaces and media virtual interfaces, each channel virtual interface being operative to associate a generic interface identifier of a corresponding virtual router with a virtual channel defined in the network device, and each media virtual interface being operative to associate a virtual channel with a corresponding physical interface and physical channel defined on the associated physical network link, the types of virtual interfaces include channel virtual interfaces, media virtual interfaces, inner label virtual interfaces, and outer label virtual interfaces, each inner label virtual interface being operative to associate a generic interface identifier of a corresponding virtual router with an inner label-switched path via which routing traffic is sent or received, each outer label virtual interface associating multiple inner label-switched paths with an outer label-switched path in which the associated inner label-switched paths are logically included, each channel virtual interface being operative to associate an outer label-switched path with a virtual channel defined in the network device, and each media virtual interface being operative to associate a virtual channel with a

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corresponding physical interface and physical channel defined on an associated physical network link.

The prior art alone or in combination fails to jointly suggest or teach the claimed combination of features as taught by the instant application. Therefore claims 1, 7-9, 11-14, 20-22, 24-26 are 27-30 are to be deemed allowable over prior art.

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salman Ahmed whose telephone number is (571) 272-8307. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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1/31/2007



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